U.S. Environmental Protection Agency
Office of Enforcement and Compliance Assurance

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Environmental Justice Smart Enforcement Assessment Tool

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EXECUTIVE SUMMARY

The Office of Enforcement and Compliance Assurance's ("OECA") Environmental Justice Smart Enforcement Assessment Tool ("EJSEAT") uses a set of indicators to:

> **(1) proactively identify, in a consistent manner, potential disproportionately high and adversely affected areas ("Areas with Potential Environmental Justice Concerns") to assist OECA in making fair and efficient resource deployment decisions, including targeting inspections; and**
>
> **(2) analyze these areas, in a consistent manner, based on demographic (race and income) information, to evaluate and measure how OECA's actions affect areas with minority and/or low-income populations.**

The EJSEAT methodology uses compliance, environmental, and demographic indicators to address both of these purposes. Therefore, to reliably allocate resources to where they are needed most, OECA deployment decisions should consider these indicators.

Specifically, EJSEAT outlines an approach, which is consistent with existing environmental and civil rights laws, regulations, and enforcement memoranda, for identifying Areas with Potential Environmental Justice Concerns and assessing OECA's decisions based on demographic (race and income) information. Implementing, in part, the OECA Environmental Justice Policy, the methodology may be used in the context of: (1) targeting and planning efforts; (2) tailoring remedies based on local conditions; (3) applying penalty considerations (*e.g.*, risk of injury); (4) developing supplemental environmental projects; and (5) measuring outcomes. In light of Supreme Court decisions, such as *Adarand Constructors, Inc. v. Pena*, 515 U.S. 200 (1995), and *Grutter v. Bollinger*, 539 U.S. 306 (2003), on the use of racial classifications in government decision-making, OECA and the EJSEAT methodology do not use race as a criterion for making decisions. However, once OECA has made its decisions, OECA staff should analyze the decisions based on demographic (race and income) information to determine the extent to which the actions taken focus on minority and low-income populations located in areas with potential disproportionately high and adverse effects.

The EJSEAT methodology is flexible, but structured. Staff should tailor the range of facilities or geographic areas to address specific program needs or priorities. To ensure consistency, the strategy provides that indicators of local health, environmental quality, and compliance should be compared to conditions nationally. Social demographic indicators should be compared to smaller, appropriate geographic areas to account for the existence of significant regional differences. Those geographic areas and/or facilities located in areas where multiple indicators register above the averages in appropriate comparison areas, or which otherwise give cause for concern, should be identified.

As with any screening tool, it is important to understand the limitations of the data, which, in this case, are not extensive enough to make definitive statements regarding public health and environmental burdens. Instead, this framework is intended to identify potential disproportionately high and adversely affected areas in a uniform manner and use available data to assist OECA in making fair and efficient resource deployment decisions, consistent with Executive Order 12898 and existing environmental and civil rights law.

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I. INTRODUCTION

Since the early 1990s, the United States Environmental Protection Agency ("EPA" or the "Agency") has sought to integrate environmental justice ("EJ") into the Agency's decision-making process. Executive Order 12898 (the "Executive Order")[1] directed EPA and other federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

For this purpose, EPA considers a disproportionately high and adverse effect or impact to be one that: (1) is predominately borne by any segment of the population, including a minority and/or a low-income population; or (2) will be suffered by a minority and/or low-income population and is appreciably more severe, or greater in magnitude, than the adverse effect or impact that will be suffered by a non-minority population and/or non-low-income population.[2]

Consistent with the Executive Order, the EPA Administrator stated in an August 9, 2001 memorandum to Agency employees that, "Environmental statutes provide many opportunities to address environmental risks and hazards in minority communities and/or low-income communities. Application of these existing statutory provisions is an important part of this Agency's effort to prevent those communities from being subject to disproportionately high and adverse impacts, and environmental effects."[3]

Within EPA, the Office of Enforcement and Compliance Assurance ("OECA") is responsible for ensuring full compliance with the laws intended to protect human health and the environment of all communities. On April 15, 2003, OECA's Assistant Administrator outlined the Smart Enforcement approach for OECA to target compliance and enforcement efforts strategically to ensure that the most significant impacts to human health and the environment are addressed first. Environmental Justice was identified as a cornerstone of Smart Enforcement.

Subsequently, OECA's Principal Deputy Assistant Administrator issued a

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[1] "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 *Fed. Reg*. 7629 (Feb. 11, 1994).

[2] EPA "Toolkit for Assessing Potential Allegations of Environmental Injustice" ("Toolkit"), Nov. 3, 2004, at 70.

[3] "EPA's Commitment to Environmental Justice" Memorandum, Aug. 9, 2001.

memorandum on OECA's Environmental Justice Policy,[4] further emphasizing the importance of environmental justice in OECA's program implementation. Consistent with the goals of environmental justice, OECA's application of Smart Enforcement concepts uses existing data to identify human health and environmental problems, and enforcement and compliance tools to address these problems in Areas with Potential Environmental Justice Concerns.

This document describes how OECA should enhance targeting efforts, using Environmental Justice Indicators (*i.e.*, Health, Environmental, Compliance, and Social Demographics) to ensure identification of facilities, sectors, and geographic areas that may have, or contribute to, disproportionately high and adverse human health or environmental impacts. The selected indicators represent a subset of those identified in EPA's "Toolkit for Assessing Potential Allegations of Environmental Injustice" ("Toolkit") that are relevant to the context of enforcement targeting.

The document begins with the definition of environmental justice. It then presents a framework by which geographic areas with environmental and public health issues/problems or industrial sectors may be identified. A discussion of the implementation issues to be addressed follows.

II. DEFINITION

According to EPA:

> **Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially**

[4] "OECA Environmental Justice Policy" Memorandum, Jan. 12, 2004.

affected.[5]

In sum, environmental justice is the goal to be achieved for all communities and persons across this Nation. Environmental justice is achieved when everyone, regardless of race, culture, or income, enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

III. FRAMEWORK

This document establishes a nationally consistent set of indicators to help: (1) proactively identify, in a consistent manner, potential disproportionately high and adversely affected areas ("Areas with Potential Environmental Justice Concerns") to assist OECA in making fair and efficient resource deployment decisions, including targeting inspections; and (2) analyze these areas, in a consistent manner, based on demographic (race and income) information, to evaluate and measure how OECA's actions affect areas with minority and/or low-income populations.

Specifically, EJSEAT outlines an approach, which is consistent with existing environmental and civil rights laws, regulations, and enforcement memoranda, for identifying Areas with Potential Environmental Justice Concerns and assessing OECA's decisions based on demographic (race and income) information. Implementing, in part, the OECA Environmental Justice Policy, the methodology may be used in the context of: (1) targeting and planning efforts; (2) tailoring remedies based on local conditions; (3) applying penalty considerations (*e.g.*, risk of injury); (4) developing supplemental environmental projects; and (5) measuring outcomes. In light of Supreme Court decisions, such as *Adarand Constructors, Inc. v. Pena*, 515 U.S. 200 (1995), and *Grutter v. Bollinger*, 539 U.S. 306 (2003), on the use of racial classifications in government decision-making, OECA and the EJSEAT methodology do not use race as a criterion for making decisions. However, once OECA has made its decisions, OECA staff should analyze the decisions based on demographic (race and income) information to determine the extent to which the actions taken focus on minority and low-income populations located in areas with potential disproportionately high and adverse effects.

Given OECA's limited resources, this information will help OECA make informed, efficient, and fair decisions to ensure that attention is given to the most significant public health and environmental problems, including problems in minority and/or low-income populations. As with any assessment tool, it is important to understand the limitations of the data, which, in this case, are not extensive enough to allow for definitive statements regarding public health and environmental burdens.

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[5] Toolkit, *supra* note 2, at 8.

To effectively protect human health and the environment, the EJSEAT methodology uses Environmental Justice Indicators, which are described below, to assess conditions in geographic areas. These Environmental Justice Indicators include: (1) existing health vulnerabilities; (2) compliance; (3) social demographics (excluding race); and (4) environmental conditions. Once areas with these conditions have been identified, information on impacted minority and/or low-income populations is considered consistent with Executive Order 12898.

Finally, this guidance document addresses how OECA can apply a nationally consistent set of indicators to address the following targeting and planning needs:

- **Consideration of self-identified communities with environmental and public health issues/problems for action;**
- **Identification and consideration of communities with environmental and public health issues/problems for action; and**
- **Evaluation of national priority sectors to identify facilities that may contribute to an area's environmental and public health issues/problems.**

By identifying geographic areas of concern based on Environmental Justice Indicators, the EJSEAT methodology creates a proactive process that can be used to effectively assess geographic areas and facilities within a priority sector for appropriate action. Several potential environmental justice indicators and associated data sources are outlined below.

A. Environmental Compliance Factors

OECA manages several data systems that collect information regarding the frequency in which EPA and the States monitor facility compliance, as well as an individual facility's overall compliance and enforcement history. The following factors address facility density and overall compliance within a geographic area.

Environmental Compliance Factors	Data Sources & Issues
Facility density and proximity to Corrective Action/ Superfund Sites	**EPA, Geographic Information Systems ("GIS"), States (should look at all permitted and non-permitted sites of concern, such as printing shops and auto body repair shops).**

Environmental Compliance Factors	Data Sources & Issues
Enforcement Data	**EPA, States. Some of the measures include:** • **number of high priority violations/significant non-compliance ("HPVs/SNCs") for all program areas;** • **HPV/SNC Rate: number of new identified per 100 facilities inspected;** • **percent and number of uninspected facilities; and** • **percent and number of unaddressed violations.**

B. Health (Vulnerabilities) Factors

The health vulnerability factors identified below are divided into two categories: core and supplemental. The core health factors can be used at the national level to provide an overall assessment of community health conditions. The supplemental health factors can be used for individual communities of concern where the data is available. These factors are not intended to suggest cause and effect but instead to help identify areas with existing health-related vulnerabilities.

Core Health Factors	Data Source
Cancer mortality rate (age adjusted)	**National & State: http://www.cdc.gov/cancer/npcr/2000/index.htm**
Cancer incidence rate (age adjusted)	**National, State, and Census region: http://www.cdc.gov/cancer/npcr/uscs/report/index.htm**
Infant mortality rate	**National: http://www.cdc.gov/nchs/data/nvsr/nvsr50/50_12t1.pdf State: http://www.cdc.gov/epo/shp/pdf/shp2002.pdf http://www.cdc.gov/nchs/data/nvsr/nvsr50/50_12t1.pdf**
Low birth weight rate	**National: http://www.cdc.gov/nchs/data/statab/t991x26.pdf State: http://www.cdc.gov/epo/shp/pdf/shp2002.pdf**

Supplemental Health Factors	Data Source
Asthma	**National data on deaths, hospital discharges, prevalence, and emergency room and /or doctor's visits: http://www.lungusa.org/data/asthma/asthma1.pdf**

Supplemental Health Factors	Data Source
Childhood lead poisoning	**National: http://www.cdc.gov/nceh/lead/research/kidsBLL.htm State, County, Census tract, and block groups: http://www2.cdc.gov/nceh/lead/census90/house11/house11.htm**

C. Environmental Factors

As the Toolkit provides, several environmental factors should be used to assess environmental conditions. The primary national factors that should be considered include: Toxic Release Inventory ("TRI") emissions using the Risk Screening Environmental Indicators ("RSEI") program, Attainment Status, and National Air Toxic Assessment ("NATA") data. Additional factors, available at the local level, can then be used to refine the assessment (*e.g.*, Clean Water Act § 305(b) stream data ("305(b) stream data"), beach closings, fish advisories).

Environmental Factors	Data Sources & Issues
Attainment status	**EPA, States, includes Ozone Action Days and Ambient Air Monitoring data.**
Emissions	**EPA, States, TRI data, NATA data. EPA's RSEI program can be used to assess the risk emissions posed to a community. RSEI information is available at: www.epa.gov/opptintr/rsei.**
Indoor air issues	**United States Census, State Indoor Air Programs**
305(b) stream data	**EPA**
Fish advisories	**States**
Beach closings	**County and local governments**
Truck traffic	**State and local environmental quality and transportation departments can provide data on numbers of trucks, resulting air quality, etc. Use EPA Air Division data to track trucks as mobile pollution sources. NATA data also provides risk estimates for mobile sources, separated by on-road and off-road, as well as diesel exhaust emission estimates.**

The above factors have been chosen based on their nexus to relevant health and environmental concerns and on data quality and availability. Should new, high-quality data sources become available, additional factors could be added.

D. Social Demographics

The definition of an "environmental justice community" traditionally included a focus on race/ethnicity and income. An additional factor to include would be vulnerable populations, which can include: children; the elderly; and subsistence hunter, fisher, and gatherer groups. These population groups tend to be more impacted by environmental exposures than the general population.

1. Minority Populations

Census 2000 revised the questions on race and Hispanic origin to better reflect the country's growing diversity.[6] The federal government considers race and Hispanic origin as two separate concepts. Therefore, for Census 2000, all individuals living in the United States were asked the question on race and the question on Hispanic origin. Although the question on Hispanic origin remained the same as in the past, it was located directly before the question on race.

In addition, the question on race was changed to address three issues: 1) the Office of Management and Budget's ("OMB") requirement that federal agencies use a minimum of five race categories; 2) a desire to add "some other race alone" category; and 3) to accommodate those who choose to report "two or more races." As a result, Census 2000 provided seven race categories:

- **White alone;**
- **Black or African American alone;**
- **American Indian or Alaska Native alone;**
- **Asian alone;**
- **Native Hawaiian or Other Pacific Islander alone;**
- **Some other race alone; and**
- **Two or more races.**

Ethnicity was defined as either Hispanic origin or not of Hispanic origin. Therefore, through the combination of race data and ethnicity data, Census 2000 data can be used to identify minority populations.

The Office of Environmental Justice has defined "minority" populations to include Hispanic, Asian-Americans and Pacific Islanders, African-Americans, American Indians, and Alaskan Natives, as did the Interagency Working Group on Environmental Justice, which drafted the *Guidance for Federal Agencies on Key Terms in Executive Order 12898*.

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[6]U.S. Census Bureau 2001. "Census 2000 Brief: Overview of Race and Hispanic Origin, March 2001." C2KBR/01-1.

Most EPA geographic analyses have been based on the Census classifications, and refer to the total of Black, American Indian/Alaska Native, Asian or Pacific Islander, Other race, and White Hispanics as minority populations. An alternative method for calculating this total is to deduct White non-Hispanics from the total population. These three alternatives represent by far the most frequently used definitions. In all these definitions, general agreement exists on the definition of minority as all races excluding non-Hispanic whites.

2. Vulnerable Populations

It is generally accepted that children and senior citizens are sub-populations that are more susceptible to health insults than the general population. One way to define these groups is to include persons between a specific age range. Age-based criteria vary, and arguments can be made to increase or decrease the age limits based on the effects of varying chemicals. For example, lead poisoning tends to be a problem for children six (6) years of age and younger.[7] On the other hand, there is some evidence that indicates that teens are also affected by lead poisoning. Generally, older citizens tend to experience more dramatic changes in health as they age. However, from an environmental health perspective, age is less of a predictor of susceptibility than underlying chronic conditions that are common as people age. Older adults are a heterogeneous group and often are described as being in two camps, the fit or the frail. In addition, a member of National Environmental Justice Action Council ("NEJAC") enforcement subcommittee recommended that age for older citizens be set at fifty-five (55) due to a belief that African Americans suffer at a younger age from respiratory problems. It is important to balance the desire to be inclusive with the need to establish meaningful indicators. Given that OECA is trying to identify the most significant problems, it might not be appropriate to set the age limits at fourteen (14) and fifty-five (55) years old, as it would likely be so inclusive that it would be not be a very useful indicator. Therefore, OECA should use children six (6) years of age or younger (consistent with EPA's Lead Program) and older citizens sixty-five years (65) of age or older (consistent with EPA's Aging Initiative) as indicators of vulnerable populations.

The age of a home can also be an indicator of indoor air risk, as it provides some description of the living environment and may offer some additional information regarding potential exposures. Additionally, a household may be more vulnerable to environmental insults if it uses coal, coke, or wood for heating fuel; further, homes built prior to 1978 may create greater environmental impacts due to the greater likelihood that lead-based paints will be present. Further, older, multiple family housing is more likely to support larger populations of biological vectors (*i.e.*, rats, mice, and roaches) and the resulting biological risk, as well as having higher pesticide usage.

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[7]U.S. Environmental Protection Agency, "Lead in Your Home: A Parent's Reference Guide," EPA 747-B-98-002, June 1998, at 5.

Other potential vulnerabilities include cultural land use variations, due to unique exposure pathways resulting from cultural activities, such as wild rice harvesting or subsistence hunting and fishing. Section 4-401 of Executive Order 12898 provides for federal agencies to collect data on "consumption patterns of populations who principally rely on fish and/or wildlife for subsistence." Pollutants discharged into the airways and waterways near these populations may pose a greater health risk to those communities.

3. Economic Conditions

The economic status of a community determines whether the community is "low-income" under the Agency's Environmental Justice Program. Because the economic status of "low-income" communities is too diverse to be characterized along one dimension, the Agency should not use a single economic point to establish a community as a low-income community. The Agency can, however, establish a generic economic definition that can be used as a starting point at the national level. In other words, national consistency on what constitutes a poor community can be achieved, while at the same time leaving the Regional Offices with flexibility to refine the boundaries at the local level to more accurately identify low-income communities.

The United States Census Bureau uses the federal government's poverty definition. The United States Social Security Administration ("SSA") first published poverty statistics in the early 1960s using a poverty measure developed by Mollie Orshansky, a SSA economist. This poverty measure established a set of poverty thresholds for different types of families that consisted of the cost of an adequate diet multiplied by three to allow for other expenses. The threshold amount in 1963 for a family of two adults and two children was approximately $3,100.00. To determine a family's poverty status, its resources, defined as pre-tax money income, were compared with the appropriate threshold. Federal interagency committees subsequently revised this definition in 1969 and 1980. OMB Statistical Directive 14 prescribes this definition as the official poverty measure for federal agencies to use in their statistical work. Following OMB Statistical Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine poverty status. If a family's total income is less than its corresponding family size threshold, that family is considered to be in poverty. These poverty thresholds do not vary geographically, but they are updated annually for inflation using the Consumer Price Index. The official poverty definition counts money income before taxes and does not include capital gains and noncash benefits, such as public housing, Medicaid, and food stamps. This definition of poverty is not without criticism. The major shortcoming, as reported in the literature, is that it excludes in-kind benefits, such as food stamps, and it ignores direct tax payments, child care costs, etc.

The United States Department of Health and Human Services ("HHS") has developed poverty guidelines, which are updated yearly. The poverty guidelines are a simplification of the United States Census' poverty thresholds and are used in determining

financial eligibility for certain federal programs. These poverty guidelines are similar to the United States Census' poverty thresholds in that they are based on the size of the family unit. While the United States Census poverty thresholds focus on the number of children in a household, the HHS guidelines only consider the size of the family unit, regardless of the number of children in a household.

Whether reviewing the United States Census poverty thresholds or the HHS poverty guidelines, it is clear that they were established to determine whether a family would qualify to be included as part of a federal entitlement program. The Agency's Environmental Justice Program, however, does not necessarily look at individual families to determine economic status, but instead evaluates income levels at a census tract level.

Based on OECA's research, each federal agency has the ability to choose where its poverty level shall be set. Most federal programs begin with the United States Census poverty data or the HHS's poverty guidelines. Some federal programs set the poverty guideline for their respective program to be 100%, 125%, 150%, or 185% of the HHS poverty guidelines. The United States Department of Agriculture's Women, Infants, and Children Program for example, sets its poverty guideline as 185% of HHS guidelines to establish its poverty level.

It is clear that federal agencies either use the United States Census data or the HHS data or a combination of both to try to define the economic status of households. Therefore, the Agency should also use the same data, as its sister federal agencies, to establish economic status. Both data sets have their limitations. Because the United States Bureau of Census data related to poverty are only gathered every ten years, the data may not provide the level of detail required for regular analysis. Although updated on an annual basis, the HHS poverty guidelines are generally applied to the large geographic areas. For example, while Alaska and Hawaii have independent poverty guidelines, one set of guidelines apply to the 48 contiguous states and the District of Columbia.

IV. IMPLEMENTATION ISSUES

This section identifies implementation issues and next steps for deployment of the EJSEAT methodology.

A. Environmental Compliance, Existing Health Vulnerabilities, and Environmental Conditions

Executive Order 12898 does not define the terms "disproportionately high and adverse human health effects" and "disproportionately high and adverse environmental effects." However, the Council on Environmental Quality's *Environmental Justice Guidance under the National Environmental Protection Act* (December 10, 1997) provides guidance on these terms. The factors common to both terms include assessing the degree to

which an impact "appreciably exceeds or is likely to appreciably exceed [the impact on] the general population or other appropriate comparison group."[8]

In the permitting context, EPA has conducted EJ analyses to determine whether its proposed actions would have disproportionately high and adverse human health or environmental effects on minority or low-income populations. Typically, this is done on a facility-by-facility basis. However, in the enforcement and compliance programs, targeting decisions are many times made across broad geographic areas (*e.g.*, nation, region, state) or industrial sectors. To ensure consistency and efficiency, OECA will develop a quantitative screening tool that targets geographic areas of concern and facilities located in these areas. This tool would allow OECA to identify, and target for, appropriate compliance action, Areas with Potential Environmental Justice Concerns, and facilities located in these areas based on a discrete set of indicators.

In the development of a tool used to assess whether an area has "disproportionately high and adverse effects," the following data sources and models should be evaluated and used, as appropriate, to reflect the environmental compliance and existing health vulnerabilities and environmental conditions.

1. Environmental Compliance

This criterion can be used to provide, in relative terms, which communities have the most permitted facilities and Superfund sites in their neighborhoods. Agency databases (*e.g.*, OTIS, FRS, ICIS) can provide information on facility and site locations, inspection frequency, and compliance. This information can be ranked and mapped along with other criteria to get an overall picture of an area's environmental and health conditions.

2. Existing Health Vulnerabilities

The core indicators identified in Section III of this document should be used at the national level to provide an overall assessment of community health vulnerabilities. These indicators include: Cancer mortality rate (age adjusted); Cancer incidence rate (age adjusted); Infant mortality rate; and low birth weight rate. Similar to the ranking approach discussed above, assessments should compare communities with national and state averages, and rank by zip code (if possible) the areas with high existing health vulnerabilities.

Due to their broad coverage, nationally-compiled health statistics have limited value in terms of identifying areas of concern, although they can be useful for identifying and

[8] http://www.epa.gov/compliance/resources/policies/ej/ index.html, pp. 26-27.

understanding trends. State-level data can provide some value for identifying areas of concern; however, additional information at the local level would be needed to help narrow the focus. Unfortunately, local health data (generally found at local Health Departments) are not consistently collected and available for all communities. If available, local Health Departments can provide this data, after receiving a formal request. Due to limited resources at Health Departments, it may be important for Agency staff to plan ahead to allow these local departments sufficient time to respond to requests. Creating and maintaining good working relationships with these local departments could greatly improve the accuracy of the data, as well as improve the speed with which information is released.

3. Existing Environmental Conditions

EPA has several sources of environmental data and models that can be used as indicators of environmental conditions. These indicators are presented below:

<u>The Risk Screening Environmental Indicators ("RSEI")</u>: EPA's Office of Pollution Prevention and Toxics ("OPPT") has created toxicity weights for most chemicals listed by the TRI. The toxicity weighting system measures chemical toxicities relative to one another using a proportional system of numerical scores. These scores are based upon a chemical's toxicological potential to cause chronic human health effects. The OPPT Risk-Screening Tool uses each facility's reported TRI air releases and water discharges and models their distribution upon the surrounding population using United States Census Bureau data and site specific information, such as facility stack heights and local meteorology.

The RSEI screening tool uses risk concepts to screen large amount of data, and is particularly useful for examining trends to measure change, ranking and prioritizing industry sectors for strategic planning, conducting risk-related targeting, supporting community-based projects, and investigating environmental justice issues. RSEI is based on the TRI and considers the following information: the amount of chemical released; the location of that release; the toxicity of the chemical; its fate and transport through the environment; the route and extent of human exposure; and the number of people affected. The results are for comparative purposes and offer a screening-level perspective for relative comparisons of chemical releases, which may be useful in the establishment of priorities for improving human health and the environment. It should be noted that the use of population data (number of people affected) in RSEI may not be appropriate. Since including population in RSEI analyses may result in diminished risk to smaller communities, OECA should use the version of RSEI without the population parameter.

<u>National-scale Air Toxics Assessment</u>: The National Air Toxic Assessment ("NATA") uses computer models to estimate ambient air toxics concentrations and population exposures nationwide. The current assessment is based on 1996 data and will help to characterize the potential health risks associated with inhalation exposures to thirty-three (33) air

pollutants. These air pollutants are a subset of EPA's list of 188 toxic air pollutants plus diesel particulate matter, which is used as a surrogate measure of diesel exhaust. EPA is currently working to update the assessment using 1999 data.

<u>Non-attainment areas for criteria pollutants</u>: The AIRS air quality subsystem contains measurements of ambient concentrations of criteria air pollutants (SO2, NO2, CO, O3, PM-10, and Pb). These data are used to assess the status of the Nation's air quality and to identify exceedances of one or more National Ambient Air Quality Standards ("NAAQS"). While it may be of limited value to identify areas of concern, or facilities located in areas of concern, based solely on the location of non-attainment areas (because non-attainment areas tend to be designated in larger than "community-sized" plots), these data may be used as a component in evaluating the cumulative environmental/health impact faced by a community with environmental and public health issues/problems. Moreover, the quantitative ambient air measurements of specific pollutants allow for some risk analysis, when combined with population and available toxicity data.

<u>Ground and Surface water</u>: Under Section 305(b) of the Clean Water Act, States are required to assess the quality of their surface waters on a two-year cycle. States may also assess the nature and extent of groundwater pollution as part of this process. States assess the quality of their waters by determining if they meet designated beneficial uses (*e.g.*, drinking water supply, aquatic life support, primary contact recreation-swimming), including specific numeric and narrative criteria relating to the support of designated uses. The STORET ("Storage and Retrieval") database of ambient water quality exceedances data contains primarily chemical and physical water quality monitoring data. These two sources can be used to identify "impaired" water bodies and water quality exceedances that may have an impact on a nearby community. Water pollution may pose a potential public health concern due to an impact on drinking water supplies or fishing/recreational areas.

<u>Fish and sediment monitoring data</u>: EPA tracks the issuance of advisories in its National Fish Consumption Advisory database. The database is limited in that it only counts one advisory per water body, even if multiple fish species in different parts of the water body are found to be contaminated. In 1993, 93% of the fish consumption advisories were caused by mercury, PCBs, chlordane, dioxins, and DDT (OW RTC, 1994). Contaminated sediments and fish tissue data from the recently compiled National Sediment Inventory database have similarly been used to link pollutant discharges to human health and aquatic life impacts in minority and low-income communities.

B. Use of Social Demographic Data

Although the following discussion focuses on minority populations, the approach and issues presented below also apply to the economic and vulnerable population data.

Some studies have used a fixed or relative threshold to define a "minority area" (*e.g.*, 50% of the block group must be minority population, or at least 3 times the state average percentage minority population, to be considered a minority area), while others have used a relative comparison or a continuum ranking method. The advantage in using a specific threshold level (whether absolute or relative) is that it would be much simpler to apply, and there would be fewer ambiguities when identifying areas of concern.

Since the goal for OECA is to establish a consistent national approach, OECA should use a relative threshold based on state averages to account for regional differences, instead of using a single national number to determine minority areas. This would address the situation in, for example, California, as well as many southern states, that has higher minority percentages than the national average; whereas other states, such as Idaho and Maine, have lower minority percentages than the average. This approach enables OECA to determine whether, within the state, county, or locality, there are areas that have a significantly higher percentage of minorities than elsewhere within the region.

C. Other Implementation Issues and Next Steps

Several steps should be taken to implement the approach presented in this guidance document. While some steps may be implemented in the short-term, others may require more long-term solutions. The following are issues and steps needed for implementation of this document:

1. Improved Locational Data: **States and regions have already collected a significant amount of good quality locational data that can be used cooperatively. EPA should continue to explore methods for utilizing a mix of acquisition methods to both provide a floor of minimally acceptable data quality for all regulated entities, as well as to continue to extend the quality and completeness of data in targeted areas and for high-priority entities.**

2. Responding to Self-Identified Communities**: The approach presented in this document can also be used to respond to self-identified communities with environmental and public concerns. Regions, States, or the communities themselves should gather the same data for the identified community as for the other sites. In addition, the individuals performing the review should use the stated concerns of the subject community to guide them in their selection from the menu of indicators. For example, if the community expresses concern about the health of their children, some appropriate factors to research would be the rates of infant mortality, low birth weight, asthma, and childhood lead poisoning as set forth in the Toolkit. Following the selection of factors, a brief justification memo should be developed, regardless of whether the area is self-identified or identified by OECA, and included in any referral to the Department of Justice ("DOJ") for consideration in case development and establishing remedies and/or penalties. Early in the data gathering stage, information regarding the method and the criteria for targeting should be disseminated to Regional EJ coordinators and others who are aware of communities with potential**

environmental justice issues to give them an opportunity to identify communities they believe have environmental justice problems.

3. Data Management and Ease of Application: **Consistent and continued use of the approach described in this document depends on high-quality data sources that are easily accessible to EPA staff. Although some of the proposed indicators have data sources that are currently available, others may not have readily available data sources at this time. An assessment of data availability must be conducted to determine short-term and long-term needs. Once data sources are adopted, OECA must establish a process to ensure that data sources are maintained and updated on a regular basis. In addition, the process should include an effort to periodically review criteria and data sources to determine if more representative surrogates and data sources have been made available.**

By presenting information in a ranked manner, areas can be evaluated (*e.g.*, by zip code or other appropriate geographic units of analysis) to determine how the areas perform with respect to environmental compliance, health and environmental factors. This information can then be mapped using GIS technology for each parameter. For any analysis, it is important to recognize that the selected geographic unit of analysis can affect the analysis outcome. This phenomenon is sometimes called the "Modifiable Area Unit Problem" ("MAUP").[9] As Regions refine the analysis at a more local level, they should evaluate whether and which smaller geographic boundaries should be used to assist in identification of geographic areas. For local-level analyses, a variety of factors may be relevant in choosing the reference and target areas for analysis. The rationale for selecting particular areas should be described as part of any record of the analysis.

Finally, EJSEAT should be developed and integrated with existing OECA data systems (*i.e.*, OTIS, ICIS, EJ GIS Assessment Tool, Enviromapper) to enable Headquarters and the Regions to conduct this analysis at their desktops. Enforcement memoranda, and other policy and model documents, should also be evaluated to determine whether they should be modified to incorporate EJSEAT information.

V. CONCLUSIONS

OECA is committed to securing EPA's goal of environmental justice for all, consistent with environmental and civil rights laws and implementing regulations, by focusing attention on minority and low-income populations that are disproportionately and adversely affected by environmental and human health risks. The EJSEAT methodology

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[9]J. Maantay, "Mapping Environmental Injustices: Pitfalls and Potential of Geographic Information Systems in Assessing Environmental Health and Equity," Environ Health Perspect 110 (suppl 2), at 161-71 (2002). This paper is available online at: http://ehp.niehs.nih.gov/members/2002/suppl-2/161-171maantay/maantay-full.html.

identifies Areas with Potential Environmental Justice Concerns, aiding in the fair and efficient deployment of compliance resources, including targeting inspections. The EJSEAT methodology also provides for an analysis of these areas, based on demographic (race and income) information, to determine the extent to which the actions taken focus on minority and low-income populations located in areas with potential disproportionately high and adverse effects.